**Design Brief**

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| --- | --- |
|  | All of Year 7 at the Australian International School Singapore is submitting an entry in [The 60 Second Science Challenge - Australian Science Video Competition](http://www.60secondscience.net/). In a group of no more than 3, you must investigate, design, plan and create a well made 60sec entry to be submitted into the challenge that clearly demonstrates the effect of a force and information about that force. |

**Design Specifications:**

* The entry is to be a video
* The entry must be 60sec or less.
* The entry must be a maximum of 1500 frames.
* The entry must be in .mov, .wmv or .avi format
* The science is explained by incorporating some on-screen text and/or a narration.
* Each entry must identify the school by name in the title or credits
* No corporate logos can be displayed in the entry
* If a student is visible in the entry, a consent form must be completed
* The entry must be the students’ team’s own work
* Any music must be original and /or copyright free
* Teachers may provide advice & training, however, they are not permitted to touch any hardware or equipment after software installed and filming started.
* All footage is to be original work and filmed in 2011.
* **The final product must be uploaded by Thursday 27 October, 2011.**

**Things to be done**

|  |  |  |
| --- | --- | --- |
| Step | What you plan to do | Due date |
| Investigate: Background info about the force. |  |  |
| Design: EPI   * Choose an experiment to film * Fill in the EPI format |  |  |
| Plan:   * Design script or subtitles * Design storyboard including camera shots |  |  |
| Create:   * Film the experiment |  |  |
|  |  |
|  |  |
|  |  |
| Evaluate:   * Peer assessment * Self assessment * Teacher assessment |  | 29 October, 2010 |

Investigate

***What is the force and what does it do?***

**Force: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| What effect does it have on an object? |
| ie. slows things down; stops a moving object; causes a stationary object to start moving; deforms an object; changes the speed of an object; changes the direction of movement of an object |
|  |
| What is the actual science behind this force?  (ie things float because the downwards force of the boat displaces water which generates an upward thrust on the boat) |
| Can you find any scientific laws or theories to explain the force? |

**DESIGN: Design an experiment that you can film that will show the effect of this force. Write up your experiment using the following sub headings.**

***Aim:* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

***Hypothesis:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***Apparatus and Materials***

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***Safety***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***Independent variable: (What are you changing?)***

***Dependent variable (What are you measuring?)***

***Controlled variables (What variables do you have to keep the same for a fair test?)***

***Procedure***

**1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**4.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**5.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**6.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**7.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

***Results***

***Discussion***

**What:** Describe the general trends/ patterns in your results

**Why:** Suggest some reasons WHY you got these trends. You do not have to be exactly right, just credible.

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***Evaluation***

Evaluate the reliability of your data

*Did you collect enough data/repeat the experiment enough times to consider your results to be reliable? Were repeated results similar to each other?*

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Identify and explain two strengths of your experimental design.

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Suggest two improvements and explain how they might have improved your design.

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Evaluate the validity of your method

*Did the method allow you to collect relevant data to test your hypothesis. Summarise what was good about your method or what could be improved.*

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***Conclusion***

*Say whether the hypothesis was supported or rejected. Answer the aim – be specific.*

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| Camera directions  **Plan**  (camera shots & any camera movement) | Diagram | Script  (any dialogue; narration; captions) |
|  | Title | Must include: school name |
|  |  |  |
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**60 Second science video- Peer Marking Sheet**

**Name of the Assessor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Marking Scheme**

**Watch the video and circle the description that you think best describes each criteria.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Video** | | | |
| **Criteria Area** | **Minimal Coverage** | **Partial Coverage** | **Complete Coverage** |
| **Visually Appealing** | The video was a bit hard to watch OR why weren’t there more things to look at? | The video footage was clear enough, but I don’t know why some of them were used. | The footage used was really clear and helped me really understand what was being said. |
| **Clarity** | I had trouble understanding what the person was trying to say. | The video was good and clear, but it was hard to understand some of the words and ideas. | I understood all the video. The words were not too hard to understand and they spoke clearly. |
| **Well Prepared** | Some of the video was good, but I don’t think the group really knew a lot and it was a bit short/long. | Some of the video was good and it was sort of interesting for most of the time. I actually learnt a bit. | I think I now know a lot about the topic. The video was full of interesting facts and was really fun to listen to. |
| **Research** | All of the stuff in the video I had heard before. I wish there was something new. | Most of the stuff talked about, I already knew. A little bit was new and that was good. | Most of the talk was about something I hadn’t heard before. Where did they find that sort of information and details? They really must have searched to find some of it. |
| **Creativity and Originality** | I don’t think that the way it was done was very interesting. Why didn’t they try to make it more fun and interesting? | It was really good in places and I really liked the way they did things. | Wow, that was fantastic! Why didn’t I think of doing some of those things to help me explain my topic? |

Any other comments?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**B – Communication – understand scientific information such as data, ideas, arguments and investigations and communicate it using appropriate scientific language in a variety of modes.**

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| **Names:** | | **Class:** | **Due Date:** | |
| **Level** | **Descriptor (based on MYP Interim Objectives year 5)** | **Task Specific Descriptor (to be filled in with students prior to beginning task)** | | **Level Achieved** |
| **0** | * **The student has not reached a standard described by any of the descriptors below.** |  | | **0** |
| **1-2** | * **Uses minimal scientific language or uses scientific language out of context** * **Presents information using a limited number of appropriate modes or a variety of modes are presented with many errors/omissions** * **Student lists resources or uses a limited amount of resources** |  | | **1** |
| **2** |
| **3-4** | * **Uses most scientific language appropriately, but may need some clarification** * **Presents information using more than one mode, but some appropriate modes may be missing or have minor errors/omissions** * **Student acknowledges sources of information with some minor errors** |  | | **3** |
| **4** |
| **5-6** | * **Communicates effectively using scientific language** * **Use ICT to access, process and present information** * **Presents all information appropriately using a variety of modes including symbolic and/or visual representations accurately** * **Student acknowledges sources of information appropriately** | * **Uses key words from the topic and clarifies all scientific terms used to describe the force and its effects. Explanations for students should be appropriate for the age level** * **Clear footage is used to demonstrate the effects of the force.** * **Use ICT to find, process and present information in video form** * **A bibliography is provided using the accepted format.** | | **5** |
| **6** |

**D – Scientific Inquiry – develop scientific inquiry skills to design and carry out scientific investigations.**

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| --- | --- | --- | --- |
| **Level** | **Descriptor (based on MYP Interim Objectives year 5)** | **Task Specific Descriptor (to be filled in with students prior to beginning task)** | **Level** |
| **0** | * **The student has not reached a standard described by any of the descriptors below.** |  | **0** |
| **1-2** | * **Name the problem or research question to be tested by an investigation** * **Formulate a hypothesis with little or no logical scientific reasoning or incorrect reasoning** * **Design an investigation that does not include many of the required components listed below** * **May incompletely or incorrectly mention reliability and validity with limited or invalid suggestions for further research** |  | **1** |
| **2** |
| **3-4** | * **Identify the problem or research question to be tested by an investigation** * **Formulate a clear hypothesis with some logical scientific reasoning** * **Design valid scientific investigations that may not include all of the necessary components as listed below** * **Comment on the reliability and validity of the method with some errors or omissions and may or may not suggest valid improvements for further research** |  | **3** |
| **4** |
| **5-6** | * **Define the problem or research question to be tested by a scientific investigation** * **Formulate a clear and complete hypothesis and explain it using logical scientific reasoning** * **Design valid scientific investigations that include variables, controls, materials, a method, data collection and suggestions for analysis** * **Correctly comment on the reliability and validity of the method and suggest valid improvements for further research** | * **Write an appropriate aim which includes the independent and dependant variables** * **Hypothesis is clear, specific and testable. It must include background information using scientific facts and logic** * **All variables to be included (independent, dependant, controlled).** * **An accurate materials list, a method and a blank data table/graph is included.** * **Reliability and validity are discussed as it relates to the method.** | **5** |
| **6** |